



## Student Experimental Design Report

Name: \_\_\_\_\_ Group Members: \_\_\_\_\_ Date: \_\_\_\_\_

### Step 1: Start with Observations

*These is what I **understand** and have **observed** about the subject/object/phenomenon I am studying ...*

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### Step 2: Ask a Testable Question

*These are the possible variables that could be measured or changed ...*


I have identified and highlighted the **independent** (changed) variable and **dependent** (measured) variable in the above list. All others are **controlled** variables.

Independent Variable (IV): \_\_\_\_\_

Dependent Variable (DV): \_\_\_\_\_

**My Testable Question** (*How will the independent variable affect the dependent variable?*):

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Stop! **Discuss** with your group members and have your teacher approve your testable question.

Teacher Approved! ✓

### Step 3: Construct a Hypothesis

*This is a **statement** (not a question) of how you think the independent variable will **affect** the dependent variable and the **reason** why you think this might be true.*

If the independent variable is \_\_\_\_\_ describe the changes \_\_\_\_\_, then the dependent variable will \_\_\_\_\_ predict the effect \_\_\_\_\_, because \_\_\_\_\_ state your reasoning \_\_\_\_\_.

For example: *If the water temperature is increased, then the dissolved salt will increase, because this is true with sugar which is similar.*

## Step 4: Test With an Experiment

*My experimental design is a **fair test** (A 'fair' test means identical procedures are performed where only one variable is changed at a time).*

**Materials** needed:

**Procedural Steps:**

1.	4.
2.	5.
3.	6.

Stop! **Discuss** with your group members and have your teacher approve your experimental design before continuing.

Teacher Approved!



**Quantitative** Observations - Data Measured from Trials

Control Group:			
Level of Independent Variable: ↓	Change in: (Dependent Variable) Trial 1	Change in: (Dependent Variable) Trial 2	Change in: (Dependent Variable) Trial 3

**Qualitative** Observations:

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Stop! **Share** and **review** with your group members.



## Step 5: Organize/Classify/Display Data

*Organize and classify your data, and display using diagrams, charts, tables or graphs use this to support your conclusions.*

Stop! Discuss with your group members how you will organize and display your data. **Have your teacher approve your plan.**

Teacher Approved!



How we have chosen to **organize** and **display** our data:

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## Step 5: Data Analysis

1. Refer to the graph/chart/diagram and comment on **trends and patterns** evident in the data.

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2. **Discrepancies and sources of error:**

Are there any data points that **do not** fit the trend or pattern?

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Are there things you did which may have affected the **accuracy** of the data collection?

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Stop! Take a moment to **discuss** with your group. Look back at your **hypothesis** before continuing.

## Step 6: Draw Conclusions

How does the evidence **support** or **refute** the hypothesis (Refer to your evidence!)?

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Stop! Discuss the completed experiment with your group and with your teacher before proceeding.

## Step 7: Report/Communicate

Improvements that I/we would make to this experiment if it were repeated:

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Application of findings:

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New questions that have arisen from this experiment:

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Stop -  
hand in.